

The invention claimed is:

1. A steering system for a vehicle, comprising:

at least one wheel that pivots to define a steering angle, the steering angle defined, at least in part, by an input from an operator;

at least one sensor adapted to monitor the roll of a vehicle body and a height of the center of gravity of the vehicle from a given point;

a motor operatively connected to the wheel that supplements the input to the steering angle from the operator; and

a controller in operable communication with the sensor and operatively connected to the motor, the controller adapted to adjust the supplementation of the input to the steering angle from the operator based upon the amount of roll of the vehicle body as monitored by the sensor, and adapted to supplement the steering angle when the amount of roll of the vehicle body as monitored by the sensor exceeds a calculated maximum value defined at least in part, by the height of the center of gravity of the vehicle, thereby reducing the amount of roll of the vehicle body.

2. The steering system of claim 1, wherein the at least one sensor is adapted to monitor the height of the center of gravity of the vehicle by monitoring a weight of the vehicle.

3. The steering system of claim 2, wherein the at least one sensor is adapted to monitor the weight of the vehicle by monitoring a relative height of the suspension from a given point.

4. The steering system of claim 3, wherein the at least one sensor includes a lateral accelerometer adapted to monitor the lateral acceleration of the vehicle.

5. The steering system of claim 4, wherein the at least one sensor is adapted to monitor a difference in suspension deflection between two sides of the vehicle, thereby monitoring the amount of roll of the vehicle.

6. The steering system of claim 5, wherein the at least one sensor is adapted to monitor longitudinal speed of the vehicle.

7. The steering system of claim 1, wherein the at least one sensor includes a lateral accelerometer adapted to monitor the lateral acceleration of the vehicle.

8. The steering system of claim 1, wherein the at least one sensor is adapted to monitor a difference in suspension deflection between two sides of the vehicle, thereby monitoring the amount of roll of the vehicle.

9. The steering system of claim 1, wherein the at least one sensor is adapted to monitor a longitudinal speed of the vehicle.

10. A method of controlling roll-over of a motor vehicle, comprising the steps of:

- monitoring an actual amount of roll of a vehicle body;
- monitoring a height of the center gravity of the vehicle;

- determining a maximum roll value based, at least in part, on the height of the center of gravity of the vehicle;

- comparing the actual amount of roll of the vehicle body to the maximum roll value; and

- controlling a steering angle of a steerable wheel of the vehicle based on the comparison of the actual amount of roll of the vehicle body to the maximum roll value.

11. The method of claim 10, wherein the step of monitoring the height of the center of gravity includes monitoring a weight of the vehicle.

12. The method of claim 11, wherein the step of monitoring the height of the center of gravity includes monitoring a relative height of the suspension from a given point.

13. The method of claim 12, wherein the step of monitoring the actual amount of roll includes monitoring the lateral acceleration of the vehicle with a lateral accelerometer.

14. The method of claim 13, wherein the step of monitoring the actual amount of roll includes monitoring the difference in suspension deflection between two sides of the vehicle.

15. The method of claim 14, wherein the step of determining the maximum roll value is based, at least in part, on a longitudinal speed of the vehicle.

16. The method of claim 10, wherein the step of monitoring the height of the center of gravity includes monitoring a relative height of the suspension from a given point.

17. The method of claim 10, wherein the step of monitoring the actual amount of roll includes monitoring the lateral acceleration of the vehicle.

18. The method of claim 10, wherein the step of monitoring the actual amount of roll includes monitoring the difference in suspension deflection between two sides of the vehicle.

19. The method of claim 10, wherein the step of determining the maximum roll value is based, at least in part, on a longitudinal speed of the vehicle.

20. A method of controlling roll-over of a motor vehicle, comprising the steps of:

determining an actual amount of roll of a vehicle body by measuring the relative difference between the deflection of a suspension between two sides of the vehicle;

determining a height of the center gravity of the vehicle by monitoring the weight of the vehicle by measuring the relative height of the suspension of the vehicle relative to a given point;

determining a maximum roll value based, at least in part, on the height of the center of gravity of the vehicle;

comparing the actual amount of roll of the vehicle body to the maximum roll value; and

controlling a steering angle of a steerable wheel of the vehicle based on the comparison of the actual amount of roll of the vehicle body to the maximum roll value, thereby reducing the actual amount of roll of the vehicle body.